

10
SECOND EDITION.

THE
-- FIRST STEPS --

TO A

Practical Knowledge

OF

Amateur = = =

= = = Photography

AND BEGINNERS' NOTE BOOK,

BY

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(Chemistry and Photographic Medallist and Prizeman)

PRICE 4d.

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1899.

PREFACE TO FIRST EDITION.

The aim of this little book is not originality, but to give a concise method of producing a Photographic Print. Referring especially to the Stand Camera, and Gelatino Chloride Print-out Paper.

THE TYRO,

having gained a knowledge of its contents, and a little practical experience, will find his progress with other methods and processes grealy facilitated; and will more readily grasp the facts set forth by larger works on the subject.

It is advisable for the Beginner to make systematic notes of Date, Time of Day, Light, Stop used, Length of Exposure, and other Memoranda for reference. With this idea, this little book has been interleaved with ruled pages for that purpose.

J. W.

Fenny Stratford.



PREFATORY INTRODUCTORY TO SECOND EDITION.

The first edition of this little work having met with a satisfactory amount of success, and there being still a demand, it is my intention of writing a second edition in which I hope to slightly enlarge upon the first. Whilst still bearing in mind my original intention of, as it were, giving the skeleton of the methods of working with a Stand Camera, and the Gelatine-Chloride Print-out Process. In addition to which will be given an outline of the Bromide Printing Process. Leaving the Tyro to follow up his studies from a larger work, of which there are several good ones upon the market. He will find, by this method his progress will be hastened; for by a little practical knowledge, and experience gained, I hope from this little book, and by work with the Camera, he will understand more completely the more lengthy explanations of the larger works. Before closing these remarks, I should very much like to encourage the "Would-be Photographer," that having once mastered the art of producing a technically perfect Negative and Print, to strike for some of the ideals of the Photographic Art; that is to specialise in some particular direction, so as to become master of that special branch; because it must be recognised by all, that if an interesting spot be photographed by two persons, one worker may make his picture appeal to the spectator much more than the other—Why? because the one, having studied his subject, can put more feeling into his composition, by the best arrangement of parts, and of light, and shade, which of necessity tells its own tale in the finished work. The pictorial side of Photography is at the present time receiving a great deal of attention, and anyone wishing to work in this direction, cannot do better than read carefully the books on the subject by such men as Horsley-Hinton, H. P. Robinson, and others. The "Practical Pictorial Photography" of the former especially appeals to the writer of this book.

Now just a word as to apparatus. There is no doubt

many a Beginner is disheartened by failure and gives up photography in disgust; when probably the failures are brought about by using a cheap Camera set. There are many, who think it policy to start with a cheap lot, and get something better later on—this is false economy. If one wishes to start in a small way, buy a small Camera, say a quarter-plate size (with this a picture can be taken $4\frac{1}{4}$ by $3\frac{1}{4}$ inches), and a very good instrument of this size may be bought for about £1 upwards. In the more expensive apparatus there are special arrangements for adjusting the Camera, such as Rise and Fall Front, Double-swing Back, greater extension of Bellows, and of course a better lens and finish throughout. The Tyro, having once made a start, and if he meets with success, will soon swell with enthusiasm beyond the limitations of a $\frac{1}{4}$ plate; but being in possession of a practical knowledge, he will know exactly what to look for. The size and quality of his apparatus will entirely depend upon the amount he is willing to spend on it.

In closing, let me suggest that in Photography as in other things cleanliness and order are indispensable items.

J. W.

Fenny Stratford,

1899.



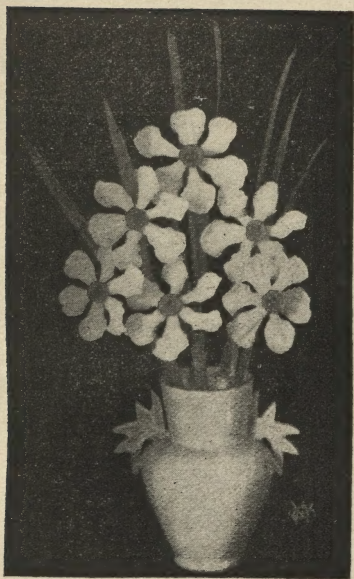
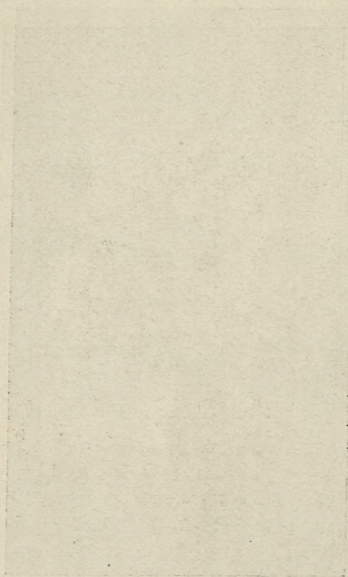


PLATE I.
THE POSITIVE.

*This Plate illustrates the Arrangement of
Parts and Lights of the Subject in the Positive.*



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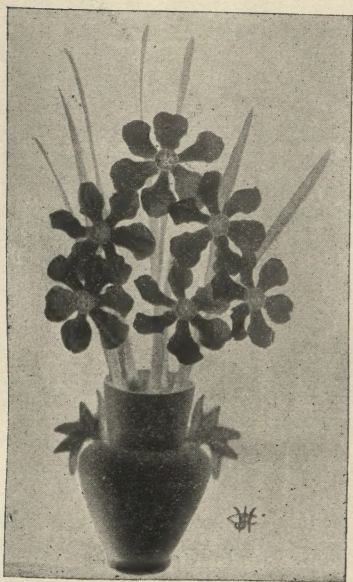
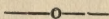


PLATE II.

THE NEGATIVE.

This plate illustrates the Arrangement of Parts and Lights of the Subject in the Negative, when it (the Negative) is held at an angle of 45 degrees to a piece of white paper or card.

THE APPARATUS.



THE CAMERA,

As we shall regard it, consists essentially of a lens, and a sheet of ground glass to receive the image, and the intervening portion enclosed by what are called bellows, consisting of leather, or such like material, pleated so as to close up into a small space, when the Camera is not in use; also to conveniently close and open during the racking out in the operation of focussing. There are two varieties of Cameras, namely the Stand, and Hand Camera, which are both subject to many modifications according to the Makers' ideas. The Stand Camera, as before mentioned, will alone be referred to in these pages; also there is no doubt, that it is the best type for a novice to begin with.

THE STAND

is an arrangement of three legs, which being attached to the 'head' forms a support for the 'body' of the Camera. For convenience they are made to fold up in two or three portions, but the chief requisite of a good stand is, that it is perfectly rigid, when set up.

THE BODY

consists of a wooden framework, having a moveable upright piece (which carries the lens) called the "front"; and a box arrangement at the back; the back of which is formed by the ground glass screen, carried in a hinged framework. The "front," and "back" are connected by the "bellows" to make the intervening space perfectly light-tight. Either the 'front' or the 'back' is made to run along brass strips, fixed to the tail board, to assist in focussing, and is held in position by a milled edge screw.

THE LENS

is carried in a brass tube, fitted to the front, and is closed by means of a cap or shutter. When the cap is removed, or shutter opened, the image of any object immediately in front of the lens will be seen on the ground

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glass screen, but upside down and indistinct. It becomes more visible if the head (of the operator) and the back part of the camera be covered with some black or dark blue material. A piece of black lining double thickness and stitched answers well; it is rendered more useful by having a hook and eye fastened to two corners, so as to be able to fasten it round the camera; the usefulness of this will be recognised in windy weather. There are two forms of lenses in general use, namely, the Single and Double (or Rectilinear), the former is useful for nearly all kinds of subjects; the latter is also useful for every variety of subject, but is an absolute requisite, if much architectural work is to be done. In most lenses (excepting the very cheap ones) there are what are called Diaphragms or Stops, which are either dropped in through a slot (the Water-house); or little plates of metal placed in the lens-tube which are made to close up by turning a ring (the Iris).

THE DARK SLIDE

Is a frame work of wood opening like a little book, and having on either side a sliding shutter. They are generally made to hold two plates, which are separated from each other by an opaque partition.

THE PLATE.

This is a piece of glass coated on one side with an emulsion of a Salt of Silver in Gelatine. As it is very sensitive to the light, all operations connected with it must be performed in a suitably lighted room or cupboard, that is, from which all light is shut out, except that which passes through ruby coloured glass.

The light probably best for the novice to use is a ruby photographic lamp, which may be bought from a Dealer, to be used either with candle, oil, or gas. A window may be blocked up, except just a small aperture, over which should be placed some ruby glass or fabric; but owing to daylight being so variable, it is risky to fit up this until after some experience has been gained.

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THE DARK OR DEVELOPING ROOM.

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If a spare room is available, and especially if near a water supply, it will be a great boon to the amateur. Failing this a cupboard, such as is found under a staircase, can be made very useful. What is wanted is a table, or a shelf or two, which, if covered with oiled cloth is beneficial, as it can quickly be wiped with a wet cloth. A fair sized can of clean water, and a receptacle (such as a bucket) into which may be thrown waste solution, and water; and the Ruby lamp as above described.

METHOD OF PROCEDURE.

TO FILL THE DARK SLIDE.

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This must be done in the dark room. Place the slide, opened, and flat, upon the table, or shelf, and take out the partition. All the parts should be carefully dusted. A plate is now taken and the coated side—which may be recognised by being held obliquely to the ruby light, when the coated side appears dull as compared with the glass side; or again if the finger is passed gently across the plate, the coated side is rougher to the touch than the other—is placed next to the bottom shutter facing downwards so that the glass side is uppermost, next place in the partition, and upon this another plate the coated side uppermost. Now close the slide, and make it secure by its fastenings. Before putting the plates in the slide, it is advisable to blow gently over the film, to remove any particles of dust, as these may ultimately cause what are called ‘pinholes’ or specks, when the plate is developed.

WITH THE CAMERA.

A subject—which should be well lighted, having the camera so positioned, that the sun is on either side slightly to front or back, but so that it does not shine down the lens tube—having been selected, the camera is placed in such a manner, that the lens comes immediately above one of the legs of the tripod, and points directly at the object to be

photographed, remove the cap. The operator, standing between the back legs, covers his head with the focussing cloth, and examines the screen, when the blurred and inverted image will be seen.

FOCUSSING.

Carefully loosen the mill-edged screw at the right-hand bottom of the moveable 'front' or 'back,' whichever it may be, and carefully move the piece backwards and forwards, watching the focussing screen when a position will be found, at which point the picture will be most clear; it is then said to be in focus. Screw up firmly, taking care that the upright does not slip. Before re-capping the lens, it is well just to see, that the different objects included in the field of the lens, are in the places desired; if not raise or lower the camera by means of the legs—if it does not possess a 'rise and fall' front—or by loosening the 'head screw' and turning the 'body' either to right or left. Everything having been made firm again, see that all is in correct focus, and the lens may be capped.

In focussing, the curvature of the surface of the lens has to be taken into consideration. In the cheap sets the lens has generally what is called a 'fixed stop,' and the focussing is carried out as above described, and everything is in sharp focus all over the screen. But in lenses having 'Diaphragms,' when the diaphragm is opened wide, the image will be noticed to be in sharp focus at the centre, but if the margin be examined things will not be quite so clear. To overcome this a suitable size stop is selected, by which means the focus becomes sharp throughout the plate. It is quite possible to work with a single lens, which has first been stopped down, and get a crisp picture throughout. But in working with a Rectilinear lens, the centre should be got in sharp focus, then gradually sharpened to half-way between centre and outside, when detail is sharp at this point the lens should be stopped down, and the picture will be in sharp focus all over.

TO EXPOSE.

Cover up the 'body' with the 'focussing cloth,' leaving the lens free, but capped. Now turn the

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catch, holding the shutter of darkslide in its place, on the side facing into the camera, and carefully drawing the shutter out, steadily but firmly; it is best to place the left hand on the top of the camera, so as to prevent its moving in any way whilst drawing the shutter. All that is now left to do, is to take off the cap, and when sufficient exposure has been given to the plate, to return it (the cap) to its place. Push back the shutter of slide, remembering which side has been exposed, so that two pictures shall not be taken on one plate.

TIME OF EXPOSURE.

This is one of the most critical items about the whole operation, so much depending upon it. It depends upon the quality of light. The most active light is when the sun is shining, and there are some white clouds about with a blue sky, *these conditions are slightly more vigorous after rain, as all dust particles are washed down.* The reverse of this is when there is a dull heavy sky, or when storm clouds obscure the sun. Working with a slow brand of plate, and having the lens well stopped down (to say *f. 32*).—*The Waterhouse Diaphragms are generally stamped 8, 16, 32 and 64.*—*In case of the Iris the lens tube is so marked, each aperture requires four times the amount of exposure of the stop before it*—in June the exposure should be from 1 to $1\frac{1}{2}$ seconds with a good active light as above described, and about mid-day; in the evening the exposure must be increased three or four fold. With a thick heavy sky the exposure must be from 3 to 6 seconds. The novice must not take these figures as definite times of exposure—but only as a basis for him to form his ideas upon. The best teacher is practice. A little experimental work is most useful, for instance, if the worker selects a subject near home, and exposes say three or four plates on it, for the first one count one, the second count 2, and so on, quickly exposing one after the other—working with the camera in the same position, and the same stop each time; if he then develops the plates in the same strength solution he will notice a marked difference in the result. He should also note in his book the time of day, and the

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atmospheric conditions. From the negatives thus obtained he will be able to select the one which gives the best result on printing; it can then be taken as a type to work to. This experiment, repeated under different conditions, and at various times of day, will give better ideas of how long to expose than any book can. Light is at its greatest intensity at mid-day, being less so early morning and evening. The quality of light gradually increases from January to June; falling off from then till December. In December the light is weakest, an exposure of 5 to 6 times the length is required compared with June at that time. It is well for the novice to accustom himself to form some idea of the activity of the light, by the brightness, or dulness of the ground-glass screen when focussing, attention to this will often help one to judge fairly accurately what exposure to give.

DEVELOPING.

This must be carried on in the darkroom. The requisites being a Photographic Lamp. 2 or 3 Developing Dishes, which may be of xylonite, porcelain, etc., and of the same size as the plate in use. For convenience we will suppose ourselves to be working with a $\frac{1}{4}$ plate, a jug to hold about a pint of water for handy manipulation, a 2 or 4 oz. graduated glass, and the necessary solutions, of which there are four, namely, the Reducer, Accelerator, Restrainer, and Fixer. Frequently the restrainer is contained in one of the other solutions, thus leaving us with three, which we will call A., B., and Fixer. Most manufacturers of plates issue recipes for developing solutions suitable for their plates. Whilst perhaps best results may be obtained by following these, there are several kinds of developers to be obtained, which will work most brands of plates. If the novice is not altogether quite sure of his capabilities as a compounder, it will be best for him to buy his solutions ready prepared. Now to develop. First light the lamp, and allow it to remain with the top off for a few minutes, so that the moisture inside shall condense on the

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glass, then carefully wipe this off, and fit the lamp together. Whilst waiting for the lamp, see that all things are in readiness. Now from bottle A carefully measure out one ounce of solution and then an equal quantity from B, stir them together to mix thorough'y.

It is not a bad plan to have two quantities of solution mixed—one as above, and one containing only half the quantity of B, and so to commence developing with the latter bath; for by this method it is frequently possible to save an over-exposure; which would otherwise be lost. In working with this latter solution, if the image comes up quickly, that is a few seconds after the plate is put in the developing should be carried on until all detail is out, and then transferred to the other bath for a short time to gather density. If it does not show up for a minute or two, it may be transferred at once. All being ready, the plate is taken from the slide, carefully run round the edges with a bit of wax or hard paraffin (such as a wax candle), next carefully dust and place in dish film side upwards. Take the dish in one hand, and the measure of A and B in the other, then with a sweeping motion pass the measure along the dish, at the same time pouring in the solution, so as to cause it to flow evenly over the plate, and gently rock the dish backwards and forwards. If any air-bells form on the surface of the plate, they should be removed by gently passing a tuft of cotton wool over it. Watch the plate, *which, when first taken from the slide, shows no marked difference in appearance from when it was first put in*; in a minute or so the image will gradually begin to show the high-light, that is the clouds and brightly lighted parts will come up first, then the middle portions, and lastly the darker or less lighted portions such as shadows. When all the detail is out, the plate should be allowed to remain a few seconds to gather density. Before pouring off the solution, the plate should be carefully raised by putting the finger nail, or a plate lifter, under one corner, and lifting it up, if the back is examined, and most of the detail is faintly seen, development may be considered complete--pour off the solution into the measure

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glass. Put back the plate into the dish, and wash several times with water. Transfer the plate to another dish, and pour sufficient Fixer in to well cover it, and allow it to remain for 10 minutes, or until all the creamy looking substance seen on the back is entirely gone. Afterwards wash several times with water. The plate may now be examined by any light. Finally it must be washed in running water for a couple of hours, or if running water be not available, in many changes of water for the same length of time, preferably standing edgeways. One ounce of each A and B will very well work 4 to 6 plates. When once the solutions are mixed, they will not keep good for many hours, so that it behoves one to get several plates to develop—and when they have all been developed to commence washing them altogether, being careful not to scratch the films.

TO DRY.

When thoroughly washed, stand the plates on ends out of all dust, and where they cannot be damaged—to dry, which will take from 5 to 6 hours, unless special means are taken to dry them. If the developing and washing be carried on in the evening, they will be ready for use by the morning.

We have now what is called a “Negative,” in which the lights, and shades are just the reverse of what they will be in the finished print—“The Positive” By referring to the plates 1 and 4 at the beginning of the book, this will be clearly demonstrated.

PRINTING.

TO PRINT

requires the negative, and Print-out Paper, called in short P.O.P., which is a paper that has been coated with an emulsion, after the same nature as that with which the plate is coated—but with a different salt of silver. The paper is thus rendered sensitive to light, but in a more modified degree than the plate, hence it can be handled in weak day light—but must not be exposed too

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long, or its surface becomes slightly affected. The third requisite will be a printing frame, which consists of an outside framework of wood, having a moveable back, which is divided at the centre, but hinged ; so as to allow one half to be opened at a time. The back is held in place by springs.

THE PROCESS.

Take the back out of the frame, place in the negative film upwards, next to this put a sheet of sensitized paper, glossy side next to the plate ; then replace the back and fasten down. Put the frame with its contents in a position, where it will be exposed, but not directly in the sun. After about five minutes carefully unfasten one of the springs, pull back the half of the back, and examine the paper ; when the outlines of the picture will be seen. Never undo both springs at once when examining, as the print may slip, and it is practically impossible to put it back in exactly the same position, and a blurred picture will result. When the picture has acquired a fairly dark color—brownish to purple—it should be removed and placed between the leaves of a book. Do not expose too long to the light after taking from the frame. When half-a-dozen or so have been printed they will require to be toned.

TONING.

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TO TONE

will require toning solutions : two or three deep porcelain dishes, a size or two larger than those used for developing ; these dishes may be bought with the names ' Toning ' and ' Fixing ' burnt in. It is advisable to keep them distinct as the smallest quantity of fixing solution getting into the toning bath is quite sufficient to upset the whole affair. Toning may be carried on in weak daylight, or in the evening. First wash the prints by transferring from one dish to another until the wash water remains quite clear. It takes about half-a-dozen such washings, the first three being done quickly, but carefully ; in the last three washings the print should be allowed to

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remain in the water five minutes each time, afterwards place in toning baths, which may be put into one of the two dishes.

THE TONING BATH

is usually made up of two solutions, and depends upon the variety of the paper used. Recipes for the Toning Solutions are frequently given in each packet of paper. Keep the prints moving about by taking the bottom print and placing it top, then the next, and so on; so that each may get a fair share of the active ingredient of the solution. Continue this until the required tone is obtained. When the prints are first washed they become reddish brown in colour, which during the toning gradually changes through deeper shades of brown to a purple; and when the print is held up between the eye and light, if the darker parts show a chocolate brown color, the toning may be stopped; the result will be a warm purplish-brown tone, as the Fixing Solution washes up the color somewhat, especially if the solution be strong; however, it is recovered to a slight extent, when the print dries. The longer the prints are kept in the bath the colder becomes the tone. When sufficiently toned put into another dish of clean water. Rinse the prints once or twice, and they are ready to fix. The Fixing Solution used for prints is the same as for the plates only weaker. The prints having been put into the fixing solution in a dish, they should be moved about in just the same way as when toning, for about ten minutes, when they are ready for washing, which should be done in running water, or by frequently changing the water. The method used in washing before toning is a good one, as any sediment at the bottom of the dish is easily got rid of; the washing should last from one-and-a-half to two hours, to remove every trace of the 'fixer.' Take care not to handle the prints on the film side too much—except just at the margin—or stains may result; and that the prints do not stick together in 'washing,' 'toning,' or 'fixing.' It is also advisable to keep the 'Fixing Solution' out of the way when toning, as prevention is better than cure; because

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if it is not near, none can get into the toning bath and upset matters.

TO DRY.

After washing, place the prints face upwards on a clean cloth, or some blotting paper, out of reach of dust, and allow them to remain until quite dry, they are then ready for mounting.

MOUNTING.

TO TRIM THE PRINT.

Carefully trim the edges off the print, caused by the rebate of printing frame. To do this get a piece of plate glass about one foot square. The glass of a spoiled plate from which the film has been stripped, whilst wet. A sharp pocket knife and a few sheets of waxed paper, (such as is used by a druggist for putting over ointment pots), a pot of Mountant and a brush. Proper cutting-glasses and trimmers may be bought from a Dealer if desired. Take the plate glass and put on it the print film upwards. Upon the print carefully lay the small glass—arrange this so that the top and one side can be trimmed, without further moving the glass. Press the whole firmly down, and with the knife with one cut trim off the top; in the same way remove the side. Now turn the print round and again put the glass upon it. True up the print by seeing that the trimmed edges of the print are parallel with the edges of the glass, by which they will be slightly overlapped, and remove the other two sides as before.

TO MOUNT THE PRINT.

The print having been trimmed, should be laid face downwards on a piece of clean paper, and the back well coated with mountant. Quarter plate size print may be held in position, whilst applying the paste, by the fingers; but for larger sizes a good plan is to lay a piece of glass (about three-quarters the size of the print) upon the print, then apply paste to the edges, and afterwards the centre; this prevents trouble from curling up.

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TO APPLY TO MOUNT.

Carefully lay the trimmed and pasted print in its proper position on the card, and cover it with a piece of the waxed paper, with a soft handkerchief gently rub it down, commencing from centre and rub out to margin. See that all wrinkles caused by the air being beneath print are removed, and that the edges are in close contact with the mount. It may now be put on one side to dry.

BROMIDE PAPER PRINTING.

There are certain times in the year when it is a little difficult to work P.O.P., owing to the weakness of the light; and again it is sometimes required to get a quick print from a negative. To meet both these contingencies Bromide paper is very useful, as it may be printed by gas or lamp light. Unlike P.O.P., the image is not seen when printed, but like a plate, it remains latent, and requires to be developed the resulting print being nearly black and white.

THE METHOD OF USING.

Being almost as sensitive as a plate, it must only be opened in the dark room. The negative is arranged in the printing frame in precisely the same way as for P O P. A piece of Bromide paper is put in film side to negative. *It is a little troublesome at times to know which is the coated side, but by wetting the finger and touching one of the corners, the film side will stick to the finger a little, owing to the softening of the gelatine; or if the paper is allowed to remain exposed to the air in the dark room for a short time it curls upon the film side.* When the back of the frame is replaced and fastened down, all things are ready to print. In taking the frame from the dark room to the source of light, it must be covered up.

THE EXPOSURE.

Now the length of time the paper requires to print depends upon the source of the illumination, and the density of the negative. With a medium dense negative, and an ordinary gas burner, if the frame be held about

two feet from the light, it will take from 12 to 15 seconds exposure. With a good power oil lamp about four times as long. By always using the same illuminant, and grouping the negatives into thin-medium and dense, with a little practice, a good practical knowledge is soon picked up. The exposure having been made, the frame should be covered and taken back to the dark room to be developed.

TO DEVELOPE.

Several of the developers used for plates will also work Bromide paper. Before pouring on the developing solutions, the paper should be first soaked for a minute or so in water so that it shall lie flat in the dish to receive the developer, which, after the water has been poured off, should be poured on, and the dish carefully rocked to and fro. Watch, and shortly the image will make its appearance. When it has got dark enough, the print should be quickly transferred to the fixing bath (same strength as for plate) without any washing; it should be allowed to remain in this from 10 to 15 minutes. Afterwards it should be washed after the manner of P.O.P. for an hour and half or two hours, and then dried in the same way.

Bromide Paper may be, of course, printed by daylight. Only it requires a considerable amount of care, or it will become fogged very quickly; and the exposure requires as much judgment as for plates in the camera.

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